≡ AT&T

Bruce K. Cox
Government Affairs Director

Suite 1000
1120 20th Street, N.W.
Washington, DC 20036
202 457-3686
FAX 202 457-2545
ATTMAIL !bkcox

November 8, 1996

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, D. C. 20554

Re: Ex Parte Presentation - CC Docket 96-98
      Implementation of the Local Competition Provisions
      of the Telecommunications Act of 1996

Dear Mr. Caton:

On Thursday, November 7, 1996, Ms. Karen Weis and I met with Ms. Lisa Gelb and
Mr. Robert S. Tanner, both of the Common Carrier Bureau's Policy and Planning Division, to
discuss access to operational support systems (OSSs). The attachment was used as the basis
of the presentation.

We also presented and discussed the attached binder containing the current version of
AT&T's specifications addressing the electronic interfaces for access to the incumbent local
exchange carrier operations support systems essential to a new entrant's ability to implement
resold incumbent local exchange carrier services, as well as services using the platform of
unbundled network elements. As implementation discussions with incumbent local exchange
carriers progress, or as standards evolve, AT&T will update the contents of this binder
accordingly.

Due to the late hour in which the meeting concluded, in accordance with Section
1.1206(a)(1) of the Commission's Rules, two (2) copies of this Notice are being filed with the
Secretary of the FCC on the next business day..

Sincerely,

Bruce K. Cox

Attachments

cc: Ms. Gelb (without binder)
      Mr. Tanner (without binder)
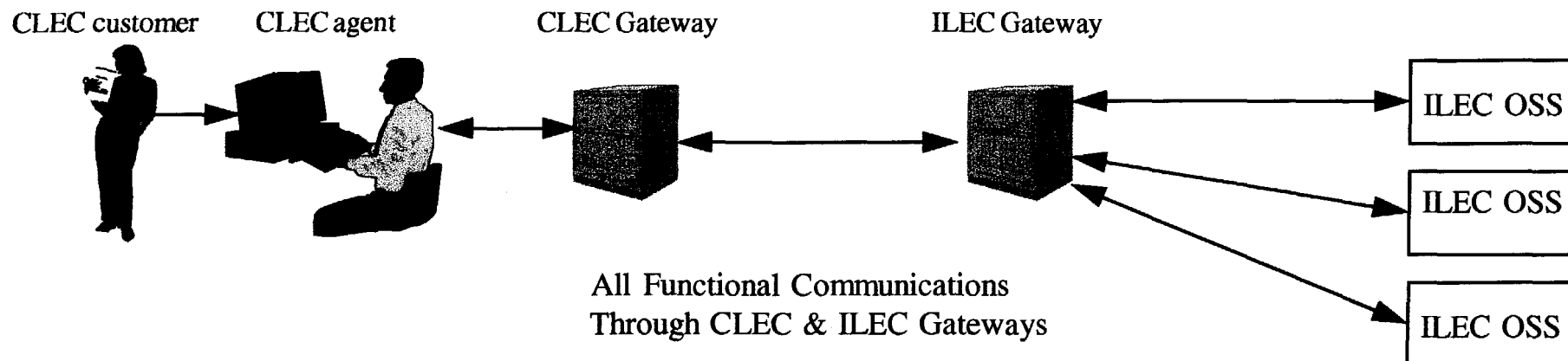
No. of Copies rec'd O+2
List ABCDE

Recycled Paper

Description Of Operational Interfaces

- Operational Interfaces Must Be Electronic Interfaces To the Extent The ILEC Is Electronic

- Access Must Be Provided Through An Electronic Gateway

- Electronic Gateway Supports All Five Interface Functions of Pre-Ordering, Ordering, Provisioning, Maintenance and Repair, and Billing

- National Standards Are Required In Order To Assure Prompt and Nondiscriminatory Performance Of Five Interface Functions
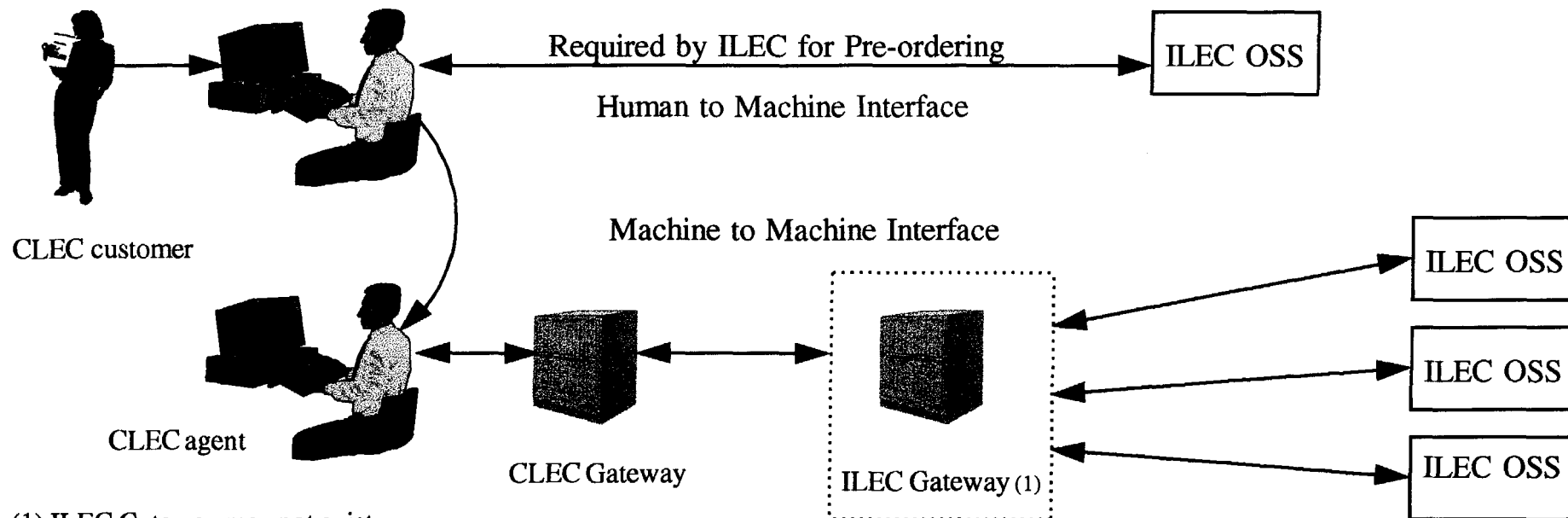
Key Criteria For Parity Access To OSSs

- Transactional Interfaces
  - » Necessary For Large Volumes Of Company To Company Communication

  - » Service Intervals Offered By CLEC Are Impacted By Both ILEC's & CLEC's Ability To Complete Transactions In a Timely Manner

- Machine To Machine Interfaces
  - » Must Equal ILEC Machine to Machine Order Processing and Provisioning

  - » CLEC Agent Must Not Be Inserted In The Information Path At Points Where No ILEC Agent Is Required or No ILEC Agent Performs Similar Function

PARITY ACCESS TO ILEC OSSs

CLEC customer   CLEC agent   CLEC Gateway   ILEC Gateway

ILEC OSS

ILEC OSS

ILEC OSS

All Functional Communications
Through CLEC & ILEC Gateways

EXAMPLE OF NON-PARITY ACCESS TO ILEC OSSs

Required by ILEC for Pre-ordering

ILEC OSS

Human to Machine Interface

CLEC customer

Machine to Machine Interface

ILEC OSS

ILEC OSS

CLEC agent

ILEC OSS

CLEC Gateway   ILEC Gateway (1)

(1) ILEC Gateway may not exist

Tests To Determine That Parity Is Achieved

- Equivalence Of Information Availability
  - » All Agreed Upon Data Is Delivered
  - » All Data Delivered Is Usable And Unambiguous
  - » Extent Of Necessary Human Intervention Is Identical

- Equivalence Of Information Accuracy
  - » Complies With Agreed Upon Formats
  - » Rules For Interactions Are Fully Implemented
  - » Demonstrated End-to-End Integrity

- Equivalence Of Information Timeliness
  - » Equivalent Elapsed Round-Trip Time
  - » Equivalent Information Vintage

Hurdles In Achieving Parity

- CLEC Is Required to Deploy Many and Different System Interfaces

  » ILECs Employ Systems That Are Functionally Similar, But Differ
    In Both Software Logic & Protocols
  » Business Processes to Transfer Information From Human to System
    And System to System Are Different For Each ILEC

- ILECs Use of Proprietary Interfaces

  » CLEC Is Blind to Systems Changes, or
  » Subjects CLEC to ILEC-Specific Interface Evolution
  » Nationally Agreed Upon Standards For Data Elements & Protocols
    Are Not Implemented In ILEC Systems

Result Is That Cost Burden Is Borne Unequally By CLEC

Examples Of Interfaces Offered By ILECs

- Actual Screens/GUIs - Viewable By Agent

  - » CLEC Is Required To Supply Human Gateways Instead Of An Electronic Gateway
  - » Screen Is Human Readable, But CLEC Agent Becomes Gateway Between ILEC and CLEC Systems
  - » Is Not a Machine to Machine Interface Such As Employed By ILECs In Their Systems to Systems Communications

- Direct Machine Interfaces With Pairwise Business Agreements

  - » 'WEB Page' Screens & Data Elements Defined By ILEC
  - » Rules For Screen Call-up, Input, & Use Determined By ILEC
  - » No Standard Data Elements Definitions or Data Models Among ILECs

CLECs Not Involved In Systems Planning or Design

Evaluation Criteria For Electronic Interfaces

- Percentage Of Information Exchanged Based On National Standard
  Data Model
  - The Lower The Percentage, The Greater the Number of Pairwise Agreements That
    Must Be Arranged Between CLEC & ILEC
- Retail Unit of ILEC Uses The Same Interface As Used By CLECs
  - No Incremental Human Intervention Required of the CLEC
- Elapsed Time For Transaction Round Trip, i.e., Query & Response,
  Is Identical For ILEC and CLEC Agents
- CLEC Agents Are Not Subject to Multiple Log Ons To Same or
  Multiple Systems To Input or Receive Data
- Electronic Interface Is Capable of Managing All Transactions Required
  For Resale, Unbundled Network Elements & Combinations
  - CLEC Is Not Required to Build or Use Different Gateways For
    Purchases From the ILEC
- Quality and Vintage of Data Supplied To CLEC Is Identical To That
  Available to ILEC Agents

TABLE OF CONTENTS

Sections:

Executive Summary

Background

The Telecommunications Act of 1996 (the Act) fundamentally changed telecommunications regulation by removing barriers that protected monopolies from competition and affirmatively promoting efficient competition. The Federal Communications Commission's (FCC) first order in Docket 96-98 (the Order) interpreted and adopted rules to implement the local competition provisions of the Act. Among the numerous items related to opening local markets to competition, the Order specifically determined that operations support systems and the information they contain constitute a "network element" and must be unbundled upon request. The Order established an explicit obligation that the Incumbent Local Exchange Carriers (ILECs) provide Competitive Local Exchange Carriers (CLECs), such as AT&T, access to the functionality of any internal gateway systems for pre-ordering, ordering, provisioning, maintenance and repair, and billing of unbundled network elements and resold services via electronic (machine-to-machine via a gateway) access. This access via gateways is intended to provide interfaces to ILEC Operational Support Systems used in the course of supporting customer servicing activities transacted with their local customers that enable CLECs to provide their customers with servicing experiences at least at parity with that provided by ILECs.

More specifically, the Order requires (para 525) that ILECs establish electronic interfaces with the CLECs by no later than January 1, 1997. The electronic interfaces are clearly intended to be machine-to-machine transactions because the Order states (para 523) that the ILECs will not discharge their obligations under the Act by offering access that involves human intervention. Thus, electronic interfaces that involve, for example, "screen scraping," terminal emulation, remote terminals or internet web pages are not solutions that are consistent with what the FCC's Order. All such solutions require human involvement in the ultimate transfer of information from the ILEC OSS to the CLEC OSS (and vice versa). Furthermore, anything other than machine-to-machine interfaces will likely require that the CLEC operations centers adopt more complicated and less efficient processes than those that used by the ILEC.

This specification document sets forth the requirements for AT&T's proposed electronic interface for transfer of information integral to the pre-ordering, ordering and provisioning, repair and maintenance, and billing activities associated with delivering local service. The proposed interfaces, wherever practical, have relied upon or leveraged interface standards and formats already adopted or under consideration by national standards bodies such as Alliance for Telecommunications Industry Solutions (ATIS) and Bellcore. AT&T has based its interface proposals upon the work of these entities for three primary reasons: (1) ATIS and Bellcore have already conducted extensive work related to these or similar business processes; (2) because ATIS working committees are open to the entire industry, the existing interfaces and standards should be well recognized

nationally; and (3) the electronic interface proposed by AT&T will be less likely to conflict with and may contribute to the development of nationally based standards.

The AT&T interface proposals that follow utilize major or entire portions of the Electronic Data Interchange (EDI) standards in the case of local service resale ordering and the customer specific infrastructure ordering processes. In fact, the proposed customer specific infrastructure ordering interface utilizes the ATIS national standard Local Service Request augmented with a business arrangement indicator. The common infrastructure ordering process, or Footprint Order, is built upon the existing Access Service Request (ASR) forms widely used for ordering of exchange access. AT&T believes only a simple new Footprint Form needs to be added along with slight modification to the Translations Questionnaire. The AT&T proposed maintenance interface uses the ATIS Electronic Bonding Interface (EBI) standards documented in ANSI T1.227 and T1.228. The EBI standard is currently used for exchange of maintenance requests associated with access services. Finally, the billing processes (end user, Unbundled Network Element (UNE) payables, and access receivables) rely upon one or both of the Exchange Message Record (EMR) or Carrier Access Billing System (CABS) formats that were developed by Bellcore and are well understood generally throughout the telecommunications industry.

AT&T intends that the electronic interfaces described herein will support the resale of local services pursuant to Section 251(c)(4)of the Act and the individual and combination purchase of UNEs pursuant to Section 251(c)(3) of the Act. While the actual data element content may vary, the structure of the interfaces outlined accommodates Local Service Resale (LSR) and UNE transactions.

Finally, adoption of interface standards does not complete the work of electronic information exchange. Detailed work is necessary, both by AT&T and each ILEC, to create the infrastructure necessary on both the ILEC and AT&T sides of the gateway or electronic interface. Such work is necessary to permit correct assembly, transmission, receipt and decomposition of machine-to-machine communications. Specification of the interface defines only a standard format and required content for business information sent electronically between companies. Nevertheless, the standardization of the interface is critically important, because it permits both AT&T and the ILECs to independently evolve the computer systems that lay on their side of the gateways.

Adequate specification of an electronic interface is a highly technical and complex undertaking. As with any complex subject, clarity of language is crucial. Therefore, the next section provides an overview of terminology used extensively within the specifications.

Common Terminology Utilized

System Gateways

A system gateway is an electronic interface between two computer systems that allows for the efficient transfer of data. The gateway performs validation, translation, and routing of exchanged information between two systems. It is important to note that the gateway "decouples" the two computer systems. That is, each computer systems can be modified and maintained independently, provided the information each sends to the other continues to comply with the interface standard. The establishment of a common gateway interface standard, therefore, provides the following primary benefits:

- Internal systems can be modified without coordinating changes with external parties.
- Once established, other parties may utilize the interface, provided they map their respective system messages to the interface specifications.
- Knowledge of the internal systems of the interfacing companies is not necessary in order to transact business.
- Technical improvements to the standards can be shared throughout the industry, thereby benefiting all existing gateway interfaces.

AT&T, proposes to establish gateways for interfacing with the ILECs and their local service OSSs. The following diagram illustrates this relationship.
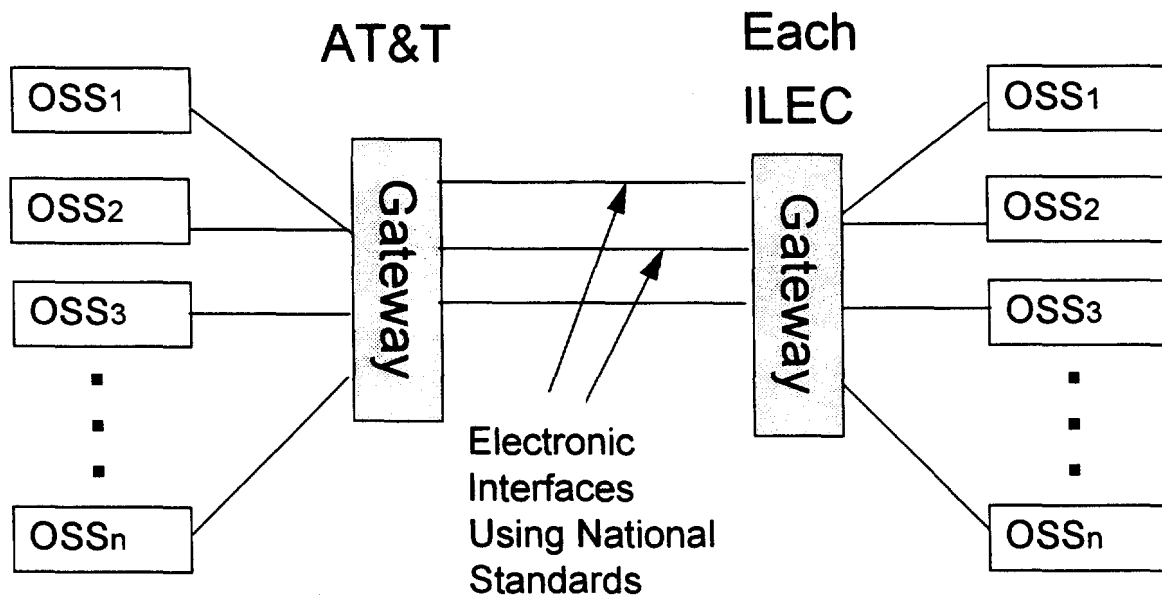
AT&T seeks to establish gateways that, at the minimum, have the following characteristics:

- The operational interface is electronic, with the following qualities:
    - The platform is stable and efficient
    - Acceptable performance standards are met (e.g., virtually all transactions are machine-to-machine transactions, and acceptable data transfer capability exists)
    - The environment is secure
- The functionality of the of the business processes (e.g., Pre-Ordering, Ordering and Provisioning, Maintenance and Repair, Customer Billing (Usage), UNE Payables, and Access Receivables) is supported
- Industry accepted and maintained standards (by telecommunications forums and commissioned entities) are used where practical

The gateway standards required to execute batch communication data feeds may differ from those to process transactional, real time information. The difference in standards tend to be the result of the combined influence of differences in the data formats, record size, and software functionality necessary to process the data. Generally, the logical processing of batch and real time communication types should be kept separate from each other for the proper management and control of the data (e.g., validation, editing, cycle runs, and error resolution).

Batch communications

Batch communications (or batch mode) is a regularly scheduled uploading or downloading of data for processing by a particular business system. The "batch" information is usually a compilation of data collected over a pre-set period of time (e.g., day, week, or month summations). Batch mode interfaces typically support movement of large volumes of data, such as raw customer usage data.

Real Time communications

Real time communications is the sending or receiving of information on demand. The "real time" or immediate transmission of data and return of response is a requirement for transactional local service support processes, such as Pre-Ordering, Ordering and Provisioning, and Maintenance and Repair.

Other Non-Gateway Mechanisms for Data Transfer

Remote Terminals: This arrangement involves the placement of a dedicated system terminal in a location other than one typically supported by the mainframe system. The user of the terminal logs directly into the system and must be fully conversant with the screens, expected inputs, and edits performed by the computer system. Remote terminals, by themselves, will not perform data transfer between computer systems. The terminal operator receives the system response and then, typically, must perform the data transfer functions manually.

Terminal Emulation: Programs called *emulators* allow a shared device (e.g., a personal computer) to mimic a dedicated terminal connected to a mainframe system. A shared device receives and sends control characters over a shared network to the mainframe system. The emulation software stores and translates the code received from the mainframe and converts instructions entered in the shared devise into a character stream that the mainframe can interpret. Terminal emulation still requires the user to be fully conversant with the transactions expected for each system that is accessed. As with remote terminal configuration, system-to-system exchange of data does not typically occur without extensive human intervention.

"Screen Scraping": Screen scraping is a process where customized software "pulls" information, in many cases over a network, from another mainframe system screen. The pull is usually as buffered character sets. Whenever the mainframe system screens are modified, the screen scraping software must also be revised. The process avoids direct access to the mainframe system by the remote end (recipient of the data). On the other hand, customized software and, probably human intervention, is necessary to effect data transfer between systems.

Internet web page: A web page is a set of related interlinked HyperText Markup Language (HTML) documents that can be accessed (addressable location) either through private networks (intranet) or through a public network (the Internet). Web pages are extremely flexible and relatively easy to design. Provided the communications links are adequate and the communications are over a well managed private network, the access is relatively secure. Nevertheless, the process is highly reliant upon human intervention (e.g., a terminal operator must enter and retrieve data for use elsewhere) and does not, by itself, constitute a gateway arrangement.

Documentation Summary

The Interface specification documentation is grouped into seven sections. Each section addresses logical processes required for the electronic exchange of information between the ILECs and AT&T.

I.   Pre-Ordering
II.   Ordering and Provisioning
III.   Repair and Maintenance
IV.   Customer Billing (Usage)
V.   UNE Payables
VI.   Access Receivables
VII.   Local Account Maintenance

I. Pre-Ordering

The Pre-Ordering process encompasses the interaction necessary between AT&T and the ILEC when an AT&T customer service agent interacts with an existing or potential local service customer from the point of initial contact up to the point at which the end user decides to either place an order for new service or modifies existing service arrangements. The document details the electronic interface (e.g., data transport, transfer syntax, and message content of the protocol) between AT&T and the ILEC for the following functional areas:

- Service Number Assignment
- Appointment Scheduling
- Service Availability
- Address Verification
- Customer Service Request

This process requires real time transactions. A Tag/Length/Value protocol is employed because it can be handled by any local service provider, regardless of platform. A simple Electronic Communications (EC) gateway (EC lite) is employed. The communication link preference is TCP/IP.

II. Ordering and Provisioning

The Ordering and Provisioning process involves the transactions that serve to notify the ILEC of the network elements or services that AT&T requires the ILEC to provide to AT&T. In addition, exchange of messages are involved that provide error conditions, status, and completion confirmation.

Three basic types of orders will be delivered via the electronic interface. They are as follows:

(1) Local Service Resale Orders (LSR environment);
(2) Customer Specific Network Element Orders (UNE environment); and,
(3) Footprint Orders (UNE environment)

As is more fully outlined in the technical specification sections, the Local Service Resale Order interface will largely be based upon the Open Billing Forum (OBF) standards of ATIS. In fact, the Local Service Resale Orders utilize the Local Service Request forms developed by the OBF and involve the well recognized EDI Version 6 Message Sets listed below:

> Customer Service Order - 850/860 transaction
> Firm Order Completion - 855/865 transaction
> Reject Notification - 855/865 transaction
> Jeopardy Notification - 855/865 transaction
> Completion Notification - 855/865 transaction
> Transmission Notification - 977 transaction

The Customer Specific Network Element Orders, that specify the UNEs that will be utilized exclusively for a single customer, will be communicated with essentially the Local Service Request forms and EDI transactions as outlined for the Local Service Resale Order. The primary difference compared to the Local Service Resale Order is the incorporation of a "business arrangement identifier." The business arrangement identifier will likely reside in both the ILEC and AT&T OSS records so that the end customer will be properly identified as being served by a UNE arrangement rather than an LSR arrangement.

The Footprint Order is a new aspect of ordering that allows AT&T to efficiently order UNEs used by AT&T to serve multiple local service customers. For example, the Footprint Order establishes the authorization for capabilities such as operator service, and directory assistance routing options at the end office level. The ordering of Network Elements captured on the Footprint Order, if performed on a customer-by-customer basis, would be highly inefficient and potentially prone to the transfer of inconsistent information (e.g., different DA routing for UNE-based customers in the same end office). The

Footprint Order, which is more fully described in the Ordering and Provisioning Specification, involves an End User Information (EUI) form, a Common Elements Section, and a Geographic Footprint Section.

The electronic interface for the Local Service Resale Orders and the Customer Specific Network Element Orders will target real time performance. The OBF Local Service Request forms and EDI based message sets will be employed. The preferred communications link is X.25 or TCP/IP.

The Footprint Order interface will be batch mode. With limited modification, the Access Service Request Forms (and associated data formats and protocols) as adopted by the OBF will be used. The communication link preference is a dedicated private line and CONNECT:direct.

III. Repair and Maintenance

The Repair and Maintenance process section documents AT&T's proposed electronic interface specifications for the monitoring and fault management activities required to service local customer accounts. This interface is commonly referred to as the Electronic Bonding Interface (EBI). This proposed electronic interface is based on an electronic interface that is currently being used for access circuit trouble reporting between the ILECs and AT&T. Most of the data attributes utilized for existing access circuit fault management processes are adaptable to support the local service repair and maintenance transaction requirements.

This electronic interface is a real time interface. The transactions will be based upon ANSI T1.227 and T1.228 standards as modified periodically through actions by the ECIC. Full EC capabilities will be utilized. The preferred communications link is X.25.

IV. Customer Billing (Usage)

In providing local service to customers, both in the case of Local Service Resale and the use of Unbundled Network Elements (except when AT&T utilizes its own switch), the ILECs must record and transfer to AT&T the customer usage data that AT&T needs to bill its customers for local service. The Customer Billing specification describes how the usage data is to be recorded, the format of the data to be provided, and the procedures for managing the exchange. Direct Measures Of Quality (DMOQ's), which are geared to ensure that customers bills will be timely and accurate, are defined for the ILEC to AT&T interface.

This electronic interface is batch mode. The format employed will be the Bellcore EMR standard. The preferred communications link is a dedicated private line using CONNECT:direct.

V & VI. UNE Payables and Access Receivables

AT&T expects that the electronic transfer of data related to both Access Receivables and UNE payables can be fully accommodated within the constructs of the CABS, (or SECABS) and EMR formats and associated data transfer mechanisms. This understanding is based upon analysis of typical call flows and the associated billing and data recording associated with each call.

This electronic interface is batch mode. The format employed will be either the Bellcore EMR format (where recorded customer usage is involved) or the Bellcore CABS formats (where UNE payables are involved). The communication link will be CONNECT:direct via private line connections.

VII. Local Account Maintenance

Local Account Maintenance is the exchange of network change activity information between the switch provider and the customer's local service provider. This communication is necessary in both a UNE and a LSR configuration because the CLEC is dependent upon the ILEC to update the network routings and convey switch changes back to the CLEC. The confirmation is critical to the CLEC, in order to update customer billing and internal data stores as well as it permits, specifically in the case of AT&T (in its LSP capacity) production of the Industry Standard Outbound Customer Account Record Exchange (CARE) data transactions to the Interexchange Carriers. The CARE transactions communicate the establishment and changes to the presubscribed Interxchange Carrier made by local service customers.

The electronic interface is batch mode. The format will be a CARE-like local use TCSI code set as outlined within the following specification document. The communication link will be CONNECT:direct via private line connections.

Performance Measurements

AT&T and the ILEC must establish joint measures for tracking the performance of the electronic interfaces established. These measures should address areas such as availability of the link, round trip cycle times for transaction based interfaces, completeness of data exchanged, and accuracy of data exchange. These measures are still under development.

General Content Review

Technical Specifications

Each section contained in the Interface Specifications Document represents the technical requirements for the electronic exchange of data between AT&T and the ILEC. Most of the defined data elements are represented by record layouts, data flow diagrams, and in some instances, integrated context models. The purpose of defining data in such a manner is to accurately define the business processes that govern the use of data within an application or system.

Summarized descriptions of the data and process model types, along with their relative importance in defining the interexchange of information, are defined below.

Record Layouts

Record layouts are utilized to define the data feed structures, individual data attributes, and technical characteristics (e.g., data type, length) for each of the logical records exchanged between two systems. Proper identification of record layouts are critical in developing the input and output of processing procedures for the acceptance of data. All validation of feed records and editing process procedures are also driven by the record layout design specifications.

Integrated Context Model

A context model is a graphical representation of the detailed data and processing requirements for an application. These models can also be utilized to form event-response models to better clarify low-level process activities for each business process.

The context model is often referenced by system designers and developers since it blends the representation of data and process. A hierarchy of context models can also unify the data and process views of an application by dividing each process into less complex activities. Integrated Context Models are not mandatory for interface design but are sometimes provided to clarify interface requirements.

Data Flow Diagrams

Data flow diagrams show what processes are being performed and what data flows through a given business model. Process specifications provide the depiction of how processes perform their functions. The purpose of data flow diagrams, as it relates to interfaces, is the following:

- Verify understanding of a process with the affected parties (e.g., business customer and supplier)
- Describe the data input, function performed, and output for each functional transaction, particularly where data crosses a process, organization, or company boundary
- Act as a source for preparing specifications
- Uncover additional functions that must be incorporated
- Serve as a checklist to record the data tables accessed by the process

Summary

Executive Summary
AT&T Electronic Interface Specification

The technical specifications proposed by AT&T for the electronic interfaces discussed are intended to be detailed requirements for the initiation of data exchange. The technical specifications documents that follow are intended to initiate and confirm the electronic support interface requirements between AT&T and the ILEC.

As stated earlier, wherever practical, the specifications follow existing technical standards, well recognized formats and employ widely accepted communications links.

Pre-Ordering

Specifications

Version 1.0

Oct. 18, 1996